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Providers' Use Of Standards Of Care For Methicillin Resistant Staphlyococcus Aureus Abcesses

Lesleigh Norris Wilbourbe

GLAUCOMA AND QUALITY OF LIFE AND THE ROLE OF THE NURSE PRACTITIONER

Being

A Literature Review Presented to the Graduate Faculty

of Mississippi University for Women in

Partial Fulfillment of the Requirements for

the Degree of Master of Science in Nursing

by

Lesleigh Norris Wilbourne

BSN, Mississippi University for Women

Date_____ Approved Barbara J Means
Graduate Studies Director

Approved Mary Curtis
Graduate Program Director

Graduate Committee Approval

The Graduate Committee of Lesleigh Norris Wilbourne hereby approves her literature review as meeting partial fulfillment of the requirements for the Degree of Master of Science in Nursing

Date_____ Approved_____
Supervising Professor/Committee Chair

Approved_____
Committee Member

Approved_____
Committee Member

DEDICATION

I wish to dedicate my research to my family. To Brian, thank you for your love and support. I cannot begin to tell you how much it has meant to me. You are my love, my life, and my future. To my son, Jackson, and daughters Mckenzie and Madison, thank you for your patience, love, and understanding. I know there have been times when mommy has been very busy with school, but I promise I will make it up to you. To Jim and Sue, thank you for all of your help throughout this year. Whether it was picking up the children, cooking dinner, etc. you guys have truly been a blessing. To my Grandpa Larry, thank you for all of your love and support throughout this year. To my parents, Walter and Jamie, I thank you for your continued faith and support. Your assistance has made this year possible. I know that without it, I would not have been able to accomplish a long awaited personal and professional goal. I love you all more than anything.

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Finally, I would like to dedicate my research to my savior Jesus Christ. I know that through him, I can do all things.

GLAUCOMA AND QUALITY OF LIFE AND THE ROLE OF THE NURSE PRACTITIONER

Lesleigh Norris Wilbourne, MSN, RN

Mississippi University for Women, 2006

Supervising Professor: Dr. Rebecca Cagle

Abstract

Vision impairment undermines the quality of life by reducing independence, mobility, and the enjoyment that goes with seeing clearly. As a nurse practitioner, we need to properly establish our patient's ability to visualize so that they can be proactive and compliant in the regimen that we establish. Vision is essential in one performing their independent activities of daily life. Decreased vision in a patient puts them at an increased risk for injury, non-compliance of care, and loss of independence. A key to successful management of vision impairment is early detection of signs and symptoms, patient education regarding preventive strategies, appropriate referrals to an ophthalmologist, and establishing the patient's personal and financial dynamics.

In the aging population, deterioration of normal vision is caused by age related physiologic and pathologic changes. Age-related decline in the visual system is caused by changes in the anatomy of the eye such as the sclera, conjunctiva, limbus, aqueous and vitreous humor, cornea, iris, lens, retina, lids, lacrimal gland, and orbit. Pathologic changes occur from systemic vascular diseases such as diabetes and hypertension, CNS diseases such as multiple sclerosis, and chronic eye diseases such as glaucoma, macular degeneration (Leipzig, 2001). Each of these conditions can cause permanent damage to the eye.

Mississippi leads the nation in populations diagnosed with glaucoma. Glaucoma is the leading cause of irreversible blindness in the world. "Glaucoma is an optic neuropathy in which the axons of the optic nerve die and the plates of lamina cribrosa collapse, leading to loss of optic nerve tissue and 'cupping' of the optic nerve head. Peripheral vision declines first, followed by loss of central vision later" (Wood, pg. 1298, 1998). Therefore, the purpose of this research project was to develop a nurse practitioner knowledgebase regarding the role of the nurse practitioner in screening and caring for the patient with glaucoma in primary care. The research questions asked (1) What is the relationship between Glaucoma and the Quality of Life in the aging population? (2) According to the literature, what is the role of primary care in screening and caring for the aging population with glaucoma? A systematic review of the literature using a computer search of CINAHL, MEDLINE, and The Cochrane Library identified gaps in the nursing knowledgebase regarding glaucoma, quality of life, and screening. This investigation is an evidenced-based practice systematic review.

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CHAPTER I

Dimensions of the Problem

According to statistics, it is estimated that 1 in 3 persons older than age 65 has an eye problem that can lead to vision loss. Vision loss in this age group is significant because it can result in functional impairment and accidental injury (Houde, 2001). In the aging population, deterioration of normal vision is caused by age related physiologic and pathologic changes. Age-related decline in the visual system is caused by changes in the anatomy of the eye such as the sclera, conjunctiva, limbus, aqueous and vitreous humor, cornea, iris, lens, retina, lids, lacrimal gland, and orbit. Pathologic changes occur from systemic vascular diseases such as diabetes and hypertension, CNS diseases such as multiple sclerosis, and chronic eye diseases such as glaucoma and macular degeneration (Leipzig, 2001). "The four leading causes of visual loss in the older adult are age-related macular degeneration (ARMD), cataracts, glaucoma, and diabetic retinopathy" (Houde, pg. 185, 2001).

Glaucoma is present in 2% of individuals older than age 40, is the leading cause of irreversible blindness in the world, and the leading cause of blindness in African Americans (Houde, 2001). Glaucoma is defined as a group of eye diseases characterized by increased intra-ocular pressure, resulting in atrophy of the optic nerve, which can possibly lead to blindness. There are three major categories of glaucoma: chronic open angle glaucoma (COAG), primary acute open angle glaucoma (POAG) and congenital glaucoma (Taber's, 1993). COAG is defined as an obstruction to outflow of aqueous humor at the trabecular meshwork or canal of Schlemn. POAG is defined, as an acute closure of irido-corneal angle with a sudden rise is intraocular pressure, producing nerve

pain and visual disturbances. Aqueous humor is a free-flowing fluid, secreted by the ciliary processes, and reabsorbed into the canal of Schlemm. It helps maintain the pressure inside the eye and provides nutrients to the lens and cornea. Genetic causes of congenital glaucoma have recently been reported (McCane & Heither, 2002). According to the Glaucoma Research Foundation, 3 million Americans have glaucoma. Those at highest risk for glaucoma are African-Americans over age 40, adults over age 60, persons with a family history of glaucoma, and ocular hypertension (Leipzig, 2001). The prevalence of glaucoma is 1.7% of the Caucasian population and three to four times greater in the African-American population. Other risk factors for glaucoma include exfoliation syndrome, which is the most common cause of open-angle glaucoma. This age-related condition known as pseudo exfoliation involves the degradation of the lens capsule and is characterized by the production and progressive accumulation of a fibrillar extracellular material in many ocular tissues. (Leipzig, 2001) Observing deposits of white, fluffy material on the anterior lens makes diagnosis. This syndrome increases the risk of formation of posterior synechiae, which are adhesions that block the flow of aqueous humor causing an increase in intra-ocular pressure. Normal intraocular pressure ranges from 10 to 20 mm Hg. Ocular hypertension is defined as an intraocular pressure of 20.5 mm Hg or higher. Even without a visual field change or optic nerve damage, patients with ocular hypertension may be at high risk for developing glaucoma. Those with intraocular pressure having a pressure greater than or equal to 24 mm Hg, may have glaucoma. However, 25-50% of the patients have normal intraocular pressure measurements, a condition known as normal-tension glaucoma. Glaucoma can be diagnosed in its asymptomatic stage, so screening is imperative in the older patient.

Treatment depends on the severity of the disease whether it be medical or surgical. For the last twenty years, first-line therapy has consisted of administration of beta-blockers, including Timoptic instilled every twelve hours. The beta-blocker action decreases the production of intraocular fluid. Side effects from these medications include low blood pressure, reduced pulse rate, fatigue, shortness of breath, bradycardia, reduced libido, and depression. According to Walgreen's Pharmacy, the average cost of Timoptic and other similar medications are $85.00 per month. Surgery or endoscopic photocoagulation is the primary treatment for congenital or POAG but is also being used in treating COAG when intraocular pressure cannot be controlled with eye drops. Surgery consists of making a small 5mm incision in the iris, and "shrinking" the ciliary processes thereby reducing the amount of aqueous fluid produced. According to the Eye Surgery and Laser Center, the average cost of this surgery for the procedure alone is $1500.00 per eye. With the American population aging, and thus increasing their risk for glaucoma, it is imperative to examine the effects that this disease has on the quality of one's life. It is also important to address certain evidence-based practices that nurse practitioners can address in order to minimize glaucoma patient's deficits.

Problem Statement

Vision impairment undermines the quality of life by reducing independence, mobility, and the enjoyment that goes with seeing clearly. As primary care providers, we need to properly establish our client's ability to visualize so that they can be proactive and compliant in the regimen that we establish. Vision is essential in one performing their independent activities of daily life. Decreased vision in a client puts them at an increased risk for injury, non-compliance of care, and loss of independence. A key to successful

management of vision impairment is early detection of signs and symptoms, client education regarding preventive strategies, appropriate referrals to an ophthalmologist, and establishing the client's personal and financial dynamics. There are many causes of visual impairment in the aging population. For the purposes of this review, these causes will not be discussed in detail. Suffice it to say that other causes as well as family history should be taken into consideration when properly caring for a client.

There are many causes of vision impairment in the aging population. However, glaucoma is a leading cause of irreversible blindness and vision-related disability in the world. As a result this review intends to provide a summary of the literature regarding the effects of glaucoma on the aging population's quality of life and the role of the nurse practitioner in screening and caring for glaucoma patients as seen in primary care.

Statement of Purpose

With our population aging, a thorough understanding of the available research regarding the effects of glaucoma is vital. Additionally, a compilation of the current literature regarding screenings in primary care aimed at improving the client's quality of life would also be an important aspect of this review. For this reason, the purpose of this review will be to further explore the literature regarding the impact of glaucoma on the aging population's quality of life and how the nurse practitioner in primary care can care for the glaucoma patient.

Significance of the Study

Research has shown that the prevalence of glaucoma is 1.7% of the Caucasian population and three to four times greater in the African-American population (Lester, 2002). The current level of healthcare knowledge regarding glaucoma and its impact on

the aging population's quality of life in primary care is somewhat limited. A computer search utilizing CINAHL, MEDLINE, and the COCHRANE Library, revealed an overwhelming amount of information on the topic of glaucoma. The number of articles was significantly reduced when the delimiter of a publishing date of no earlier than 1999 was added to the same search. Additional literature was discovered when the keywords quality of life, primary care, nurse practitioner, and aging population were entered into the database. From these searches, all relevant articles were evaluated for use in the review. The following table is a summary of the searches conducted:

Table 1

Summary of Literature Searches

Search Terms	Number of Citations	Database
glaucoma and quality of life	90	CINAHL
	100	MEDLINE
	8	COCHRANE
glaucoma and middle age	25	CINAHL
	60	MEDLINE
	9	COCHRANE
glaucoma and primary care	30	CINAHL
	70	MEDLINE
	6	COCHRANE
glaucoma and nurse practitioner	0	CINAHL
	3	MEDLINE
	0	COCHRANE

glaucoma and Nola Pender	0	CINAHL
	0	MEDLINE
	0	COCHRANE
primary care and Nola Pender	0	CINAHL
	0	MEDLINE
	0	COCHRANE
nurse practitioner and Nola Pender	0	CINAHL
	0	MEDLINE
	0	COCHRANE

Note. CINAHL= Cumulative Index to Nursing and Allied Health Literature, MEDLINE= Medical Literature Online, COCHRANE=Cochrane Library (Cochrane Database of Systematic Review, Cochrane Database of Abstracts of Review of Evidence, and Cochrane Clinical Trials Register).

Theoretical Foundation

Nola J. Pender's, "Health Promotion Model", will comprise the theoretical foundation for this review. Nola Pender's Health Promotion Model is a multivariate paradigm for explaining and predicting the health-promotion component of lifestyle. Her work is an example of a schematic model that represents phenomena graphically. Phenomena is defined as an abstract concept under study, most often used by qualitative researchers in lieu of the term variable. The Health Promotion Model is simple to understand, is middle range in scope, and is a framework for explaining health promotion.

Nola Pender believed that the goal of nursing was to help people care for themselves. Health promotion can decrease social problems such as violence, suicide, and STI's.

Furthermore, health promotion has the potential to significantly decrease health care costs in the years ahead. Pender's definition of health is positive, unifying, comprehensive, and humanistic. She believes that health includes a disease component, but does not make the disease its principle element. While healthcare professionals have longed look at the benefits of early detection and treatment of illness, known as secondary prevention; Pender has raised the importance of primary prevention and health promotion in improving health and quality of life. Primary prevention involves activities aimed at prevention of health problems before they occur ultimately leading to avoidance of disease. For example, vaccinations are an example of primary prevention geared to prevent the development of respective diseases such as the tetanus vaccination.

Pender's model is based on theories of human behavior. As healthcare providers, we recognize the role of behavior and how it may affect health promotion and primary interventions. Pender's Health Promotion Model is based on 3 theories of health behavior: the theory of reasoned action, theory of planned behavior, and social-cognitive theory. The Health Promotion Model resembles Marshall Becker's Health Belief model that is a psychological model focused on attitude and beliefs. However the HPM does not limit itself to explaining disease prevention and expands to include behaviors for enhancing health.

First Pender looks at prior related behaviors and personal factors such as biological characteristics, interpersonal influences, socio-cultural influences, and psychological influences. These are all modifying factors that play a role in determining what health care behaviors need to be addressed. Second she looks at 7 cognitive factors that are motivational mechanisms

1. The importance of health-those who value health are more likely to seek it.
2. Perceived control of health-individuals belief that a behavior is possible can influence the occurrence of that behavior.
3. Perceived self efficacy-individuals belief that a behavior is possible can influence the occurrence of that behavior
4. Definition of health-influences what behavior changes are initiated
5. Perceived health status-current state can dictate whether health promoting behaviors will be initiated.
6. Perceived benefits of behaviors-more inclined to begin or continue if benefits to such behaviors are considered high
7. Perceived barriers to health-promoting behaviors-belief that activity/behavior is difficult or unavailable may influence his intention to engage in it.

Then based on the individuals interpersonal influences such as family, peers, etc and situational influences or options they commit to a plan of action for a health promoting behavior. Nola Pender's "Health Promotion Model" is appealing to many nurses and nurse practitioners because it holistic and humanistic view is similar with their own personal philosophy of health and nursing. According to Peterson & Bredow, this model reflects a belief that persons are capable of introspection and personal change. In turn health is more than the treatment or prevention of disease, but involves the creation of conditions in which clients can express their own potential. The nurse is presented as an agent for creating behavioral and environmental changes. The environment encompasses interpersonal influences, spiritual influences, socio-cultural factors, personal factors, biological factors and psychological factors. Health Promotion Model instruments used to

test this model is the Health Promoting Lifestyle Profile II. This is a 52 item questionnaire in a 4 point response format that measure the frequency of health promoting behaviors in 6 domains: health responsibility, physical activity, nutrition, spiritual growth, interpersonal relations, and stress management

When one considers the effects of glaucoma, this framework encapsulates the essence of the approach needed not only to understand the effects of glaucoma on the aging population's quality of life, but ways the nurse practitioner can promote primary prevention. Primary prevention allows us to recognize health- promoting behaviors such as the client's overall health, which may include diet, exercise, and routine eye care. The World Health Organization (WHO) encourages action that focuses on health, strengthening community action, and building healthy public policy (Pender, et al. 2005). In an effort to promote healthy lifestyle, the national government set guidelines for the public to enhance health and lifestyle. "Healthy people in healthy communities" is the vision of Healthy People 2010. "The two major goals include increasing quality and years of healthy life and eliminating health disparities" (Pender, et al. 2005, pg. 6). The document includes 467 objectives to make progress towards goals such as physical activity, obesity, tobacco use, substance abuse, responsible sexual behavior, mental health, environmental quality, immunizations, and access to health care. An attempt to meet the objectives of Healthy People 2010 could include education in primary care on the importance of frequent eye exams in clients with a strong familial history of glaucoma. Nurse Practitioners can also manage a diagnosis of glaucoma by including interventions such as a detailed look into personal and social history, so that the proper client therapy is initiated and proper control of their glaucoma is obtained. Nurse

Practitioners also need to be aware of the patient's community including socio-cultural support to better aid the patient with compliance or understand the barriers of financial expenses.

Definitions of Terms

For the purpose of this review the following terms are defined:

Glaucoma

Theoretical. Glaucoma and the three major categories will be used interchangeably within the context of this review. Glaucoma is defined as a group of eye diseases characterized by increased intra-ocular pressure, resulting in atrophy of the optic nerve and possibly leading to blindness (Taber's Medical Encyclopedia, 1993).

Operational. Glaucoma is defined operationally as a group of eye diseases characterized by increased intra-ocular pressure, resulting in atrophy of the optic nerve and possibly leading to blindness. There are three major categories of glaucoma: chronic open angle glaucoma (COAG), acute open angle glaucoma (AOG), primary open angle glaucoma (POAG) (Taber's Medical Encyclopedia, 1993).

Quality of Life

Theoretical. Quality of Life is defined theoretically as a complex concept for which there is no universally accepted definition (Taber's Medical Dictionary, 1993). However, for the purpose of this review, the researcher will define quality of life as an impact on ones' ability to experience independence, mobility, and enjoyment.

Operational. Quality of Life is defined operationally as a complex concept for which there is no universally accepted definition (Taber's Medical Dictionary, 1993).

Primary Care

Theoretical. Primary care is defined theoretically as "the provision of integrated, accessible health-care services by clinicians who are accountable for addressing a large majority of personal health-care needs, developing a sustained partnership with patients, and practicing in the context of the family and community" (Taber's ,1993).

Operational. Primary care is defined operationally as "the provision of integrated, accessible health-care services by clinicians who are accountable for addressing a large majority of personal health-care needs" of those included in the personal, interpersonal and social systems of the interacting systems framework (Taber's Medical Dictionary, 1993).

Aging Population

Theoretical. Aging population is theoretically defined as growing older or the "maturation and physiological changes in organ systems that occur after the 30th year of life (Taber's Medical Dictionary, 1993).

Operational. Aging population is operationally defined as growing older or the "maturation and physiological changes in organ systems that occur after the 30th year of life (Taber's Medical Dictionary, 1993).

Research Questions

For the purposes of this study, the following research questions were generated:

1. What is the relationship between Glaucoma and the Quality of Life in the aging population?
2. According to the literature, what is the role of primary care in screening and caring for the aging population with glaucoma?

Delimitations

Literature was delimited, for the purpose of this integrative literature review, to the following:

1. Literature pertaining to glaucoma in primary that was published after 1997.
2. Literature pertaining to primary care strategies for improving the aging population with glaucoma in primary care.
3. Literature that is available in the English language or translated into English abstracts.
4. Literature available through CINAHL, MEDLINE, and The Cochrane Library.
5. Literature that is available through the Mississippi University for Women Library and Interlibrary loan program.

Limitations

For the purpose of this investigation a particular limitation identified is that the information obtained will be limited to the aging population.

Summary

This chapter provided the foundation for the literature review regarding the problem of glaucoma and its impact on the quality of life in the aging population as managed in primary care. The Health Promotion Model by Nola Pender was reviewed as the theoretical foundation. The terms glaucoma, quality of life, primary care, and aging population were defined. The research questions: What is the relationship between Glaucoma and the Quality of Life in the aging population and what is the role of primary care in screening and caring for the aging population with glaucoma, were identified. The delimitations and limitations of the review were discussed.

CHAPTER II

Review of the Literature

For the purposes of this study, data-based and theory based articles were reviewed and critiqued using a knowledgebase template for healthcare knowledge regarding glaucoma and its effects on the quality of life in the aging population and the role of primary care in screening and caring for the aging population with glaucoma (See Appendix A and B). The literature review of glaucoma and the quality of life in the aging population included six data-based articles and which represented another 155 references. The literature review of the role of primary care in screening and caring for the aging population with glaucoma included eight data-based articles. These articles were representative of an additional 296 references. In this chapter, an overview of each study variable is presented as it developed from the existing knowledgebase.

An Overview of the Healthcare Literature Related to Glaucoma Regarding the Quality of Life in the Aging Population

Research conducted by Uenishi, Tsumura, Miki, and Shiraki, examined the quality of life in elderly Japanese clients with glaucoma. They believed that the most important aspect to be addressed in patients with glaucoma was quality of life. The study examined 114 elderly patients with low level vision secondary to glaucoma and concluded that their emotional stability had been weakened due to the anxiety of gradually losing their vision.

The researchers formulated a questionnaire based on the National Eye Institute Visual Function Questionnaire (NEI-VFQ) and adapted it to fit the lifestyle and traditions of the Japanese population. The study found that patients, since being diagnosed with glaucoma,

had difficulty recognizing steps or staircases, reading fare charts at railway stations, and difficulty in recognizing familiar faces. Patients with advanced glaucoma had difficulty in outdoor activities, driving, recognizing traffic lights, and using ATM machines. The patients also complained of a decline in work opportunities, decreased income, and increased medical expenses. In conclusion, this study suggests that in addition to treating glaucoma, primary care professionals must address the psychosocial aspects associated with a decrease in quality of life of the affected patient (Uenishi et al., 2002).

Research conducted by Adler, et al. in 2005 examined driving habits and patterns in older men with glaucoma. The study characterized glaucoma as a disease marked by increased intraocular pressure, damage of the optic nerve, and loss in the visual field. "The condition is usually painless, gradually constricting peripheral vision until serious loss of vision has occurred" (Adler, 2005). The study noted that while glaucoma can occur at any age, the prevalence increases in people 60 years of age or older and it is beneficial for health care providers to be aware of the vision rehabilitation services offered and the psychosocial impact of the disease. Glaucoma has been associated with decreased quality of life, poorer mental health outcomes, and limitations in function (Adler, 2005). While glaucoma can interfere with the performance of activities of daily life such as reading, managing finances, cooking, modifying or stopping driving may be one of the most serious consequences. The automobile provides not only transportation but is also important in maintaining autonomy, independence, and self-esteem.

The researchers stated that high level visual skills were needed for safe driving and that the abnormalities associated with glaucoma can be problematic when driving, making it difficult to see pedestrians or vehicles approaching from the side. Because

vision problems such as glaucoma might contribute to unsafe driving, they felt research was needed to examine the relationship between visual function and driving. The study examined subjects who were male, licensed drivers of at least 59 years of age diagnosed with and without glaucoma and lived in the community. The glaucoma subjects were recruited from the Minneapolis Veterans Affairs Medical Center's eye clinic. The subjects without glaucoma were recruited from senior driving improvement courses offered by the American Association of Retired Persons (AARP) and the Minnesota Safety Center. The study addressed several questions: "What are the driving habits of older drivers with glaucoma compared to drivers without glaucoma?" "Are families of drivers with glaucoma more likely to be concerned about their relative's driving than the families of other older drivers?" "Do drivers with glaucoma make plans for driving cessation and other long-term care needs?"(Adler, 2005)

The study received approval from the Institutional Review Board (IRB) and sought medical chart review from each subject. Subjects completed a 37-item investigator-designed survey. This questionnaire obtained information about driving history, current driving habits, significant, driving pattern changes within the past year, and expectations about driving cessation. Descriptive statistics were used to characterize the demographic data and prevalence of driving habits. Inferential statistics, including *t* test and chi-square, were used to examine differences between the glaucoma and the non-glaucoma drivers. The results showed that the subjects with glaucoma were more likely to have family and friends express concern about their driving ($p=0.01$). Nine drivers (18%) believed that their glaucoma would eventually cause them to stop driving. However, glaucoma drivers were more likely than controls to have made plans for discontinuing driving ($p=0.49$).

The majority of both drivers with glaucoma and those without (98.6%) believed that driving was necessary to maintain their quality of life.

The implications of this study showed that driving presents a significant safety issue for older adults with visual impairment. Healthcare professionals must be mindful of the potential hazards associated with glaucoma and driving and be aware of the implications associated with driving reduction or cessation. Primary care providers must be knowledgeable about the issues associated with driving and visual impairment. Because glaucoma is a chronic, progressive disease that causes visual impairment, primary care providers must be able to address the topic with their clients so that they can make informed decisions regarding their driving. Also, primary care providers must make themselves aware of resources that offer transportation for clients who no longer drive. Further research is needed to examine the driving skills of older drivers with glaucoma as well as their patterns of driving modifications and decisions about cessation (Adler, 2005).

In a similar study conducted by Magacho in 2004, research was conducted to examine the quality of life in Brazilian clients with glaucoma. The research focused on possible modifiers such as visual acuity and visual field impairment. The study showed that the central vision in the better eye is the way to assess quality of life in glaucoma clients. The researcher further noted that glaucoma screening in the community may also be suggested in order to detect the disease in the early stages, therefore preserving the quality of life in these patients (Magacho, 2004).

Despite the positive findings, the study was weakened by a small sample size. However, the research provided a basis for further study into visual acuity of the better

eye to determine if this is the most important variable in determining the quality of life in glaucoma patients (Magacho, 2004).

A study conducted by Hultgren and Halseide in 2001 found that quality of life was improved in patients who were routinely managed by an ophthalmologist. The research noted that only a slight visual field loss was reported. One of the weaknesses of this study was the narrow scope of visual impairment. The research looked into cataracts and macular degeneration as eye diseases that caused the most functional decrease. However, the study provides a basis for further research to look into the relationship between the visual difficulties reported by clients being treated for glaucoma and their objective functional damage (Odberg, et al., 2001).

Research conducted by Gupta, Srinivasan, Mei, Gazzard, Sihota, and Kapoor in 2005, examined utility values in Indian clients with glaucoma. "Utility values are a measure of the subjective functional capacity of a patient; how a patient is troubled by his disease in his or her activities of everyday life. It is an indicator of the quality of life of the patient in relation to his disease. By convention, a utility value of 1.0 indicates a state of perfect health, whereas a utility value of 0 indicates death" (Gupta, et al., 2005).

Utility values of 105 patients with POAG of at least 12 months were asked to fill out a standard questionnaire. Clients with other visual impairments such as cataracts, diabetic retinopathy, and macular degeneration were excluded from the study. Patients with a recent attack of AOG were also excluded from the study. All patients that participated underwent a complete ophthalmic examination including a best corrected Snellen visual acuity, gonioscopy, standard achromatic automated perimetry, and Goldmann applanation tonometry. In order to calculate the utility vale, the patients were asked the

number of years of their expected remaining years they were willing to trade off for perfect vision. The time trade off was then divided by the number of expected remaining years of life and subtracting this proportion from 1.0.

The research study concluded that visual acuity loss occurring secondary to glaucoma is associated with a significant decrease in patient utility value in the Indian population. Furthermore, the utility value is directly dependent on the degree of visual acuity loss associated with the disease and educational status and not on the duration of the disease, the number of medications, or the visual field. The researcher concluded that patients with higher education levels may have not traded off more years, because they had a better knowledge of their disease and perhaps would be more compliant. While this study noted that populations with lower education levels and socio-economic states might not possess the knowledge needed to correctly understand their diagnosis of glaucoma, it did not focus on the economic burden of glaucoma. Therefore, the study provides further opportunity for research in relation to all aspects affecting the quality of life in patients.

A study conducted by Mansberger, et al., 2005 , showed a higher prevalence of early detection versus improved control leading to improve quality of life. The research examines community screening and discusses the relevance of visual impairment and low-tension glaucoma among American Indians/Alaska Natives compared with other racial groups. A descriptive comparison research design was used for the study that involved 288 subjects. The strength of this study showed an increase need for research regarding causes of visual impairment in American Indians and Alaska Natives. However, only three people of different occupations were interviewed. The study provided basis for further research studying possible interventions for vision impairment

in different ethnic groups. The study may have had possible biased results secondary to one being unable to seek the appropriate eye care. Also, some patients may have had higher measurements in eye pressure or blood pressure because of nervousness or "white coat syndrome" groups.

An Overview of the Healthcare Literature Related to Primary Care and the role of the Nurse Practitioner in Screening and Caring for the Aging Population with Glaucoma

In a study conducted by Dr. Fleming and associates, the researchers examined the effectiveness of screening for and treating early POAG in asymptomatic patients. The researchers based their study on a recommendation proposed in 1996 by the United States Preventive Services Task Force (USPSTF) which found insufficient evidence regarding recommendation for or against glaucoma screening in primary care practice. The USPSTF noted that although glaucoma treatment with medications or surgery to lower intraocular pressure had been the standard of care for many years, definitive evidence supporting the benefit of treating persons with early glaucoma and minimal visual impairment was not available (Fleming, et al., 2005). The researchers looked at the harms of treating early asymptomatic POAG when determining benefits. Further, the researchers found that the chief harm of treatment was patients developing an increased risk for cataract development. Congruently, those who were treated with medicines complained of an increase in ocular side effects such as dryness, excessive tearing, and itching. The researchers concluded that no studies examine whether population-based screening of asymptomatic persons for early open-angle glaucoma is effective in improving vision-specific function and quality of life, despite the evidence that treatment

Secondly, a screening procedure alone would not lead to improvement in vision. Improvements would be based on the participants following up with ophthalmologists and being compliant with treatment. However, this information was provided. A third factor which may have contributed to a lack of effect seen in the participants, may have been the participants themselves not perceiving a need for intervention. Finally, the questionnaire given for the initial screening and the outcomes may have affected the results. The researchers felt that questionnaires about vision have a low sensitivity and a low specificity for detecting visual impairment when compared to actual acuity testing.

In conclusion, the researchers found that only 11% of older people with visual impairment saw improvement. This figure illustrated the need for further research to determine the needs of older people with unreported visual problems. One of the weaknesses of this article was the researcher's failure to provide information regarding possible barriers of the older people in relation to appropriate intervention. However, the study implicates the need for broader screening in primary care when visual assessment is concerned (Smeeth & Iliffe, 2005).

Another study reviewed, examined medical management of glaucoma from primary care. The researcher noted that while most health care professionals do not treat glaucoma, it is important to be aware of the available treatments and possible side effects (Alward, 1998). The study indicated that there was no proven treatment for optic neuropathy of glaucoma. Instead treatment was focused on lowering the intraocular pressure, the one risk factor that can be modified. According to the research, intraocular pressure can be reduced by decreasing the amount of aqueous humor produced by the ciliary body or by increasing outflow of aqueous humor through the trabecular

meshwork. The second of the example requires surgical treatment and was not discussed further in the study. Treatment for the first cause is often treated with topical medications. If target pressure is not achieved with first line therapy, a second topical medication is often added. The topical medications are of high concentration and drain through the nasolacrimal duct causing systemic absorption.

Once again, the researcher noted that from a primary care standpoint, the drugs were not initiated, but an understanding of their action was vital in order to care for the client. The following medications are used in treating glaucoma: beta blockers, prostaglandin analogues, adrenergic agonists, carbonic anhydrase inhibitors, and cholinergic agonists. The first line drug used in treating glaucoma was a topical B-adrenergic-antagonist timilol or cosopt. This medication has an excellent pressure-lowering efficacy, long duration of action, and few ocular side effects (Alward, 1998).

The researcher pointed out that primary care providers needed to be aware of the ocular side effects, the systemic side effects, and possible contraindications associated with glaucoma treatment. For example, B-adrenergic antagonist can cause lethargy, weakness, anxiety, hypotension, bradycardia, diarrhea, reduced glucose tolerance in clients with diabetes, and bronchospasms. As primary care providers, you would want to consider these side effects especially in a client who presents with systemic problems of bronchospasm because the result could stem from the topical medications being used (Alward, 1998).

A study conducted by Zimmerman & Stewart in 2003 looked at the quality of life in glaucoma patients prior to pharmacologic therapy and then following Latanoprost. The study design was descriptive comparison using 3245 subjects. The study suggested that

Latanoprost (Xalatan), an antiglaucoma agent ophthalmic drop, provides decreased intra-ocular pressure. Latanoprost has limited side effects and helps maintain quality of life measures who required substitution therapy from previous uses of other monotherapy agents. The strength of this study included a large sample size and provided opportunities for increased research regarding alternative glaucoma therapy that may be more beneficial to the client in terms of cost and convenience. Latanoprost is used once daily in the pm and more affordable in comparison to other antiglaucoma agents. However, the investigator may have been biased when choosing a medicine thus affecting the patient's compliance. Furthermore, the research did not evaluate latanoprost compared to other medications in a double- Based on the fact that glaucoma is the third most common cause of blindness in the world and has been predicted to become the most common cause of blindness in the first years of this millennium, it is important to know the quality of life of these patients. According to Lester and Teono, "Glaucoma patients can lose quality of life for several reasons: the diagnoses itself, the functional loss, the inconvenience of the treatment, the side effects of the treatment, and the cost of the treatment". masked randomized fashion.

In a study performed by Lester & Teono, research was guided to study the quality of life in patients with early, moderate, and advanced glaucoma. The study showed that the primary care provider can learn how to effectively inform the patient of the importance of compliance and at the same time improve the patient's quality of life.

The researchers felt that quality of life can be measured by a questionnaire but it is also dependent on subjective data from the patient. They identified many factors that

could be related to a patient's quality of life: visual disability, problems with taking medications, incompatibility of treatment with working hours, daily life requirements, general side effects secondary to medication, local side effects, and incompatibility of treatment with physical or mental situation. These factors had to be examined in each individual, taking into account one's visual field disturbance using both eyes, reduced visual acuity due to glaucoma or treatment, and visual disturbances from other causes such as poor lighting or lens opacity secondary to cataracts. In long-term management of glaucoma, the main factor when looking at treatment is to consider the patient's current health status and possible life expectancy. The researchers evaluated the global standards for measuring quality of life and found that the standard tool, the SF-36 was not effective. Glaucoma in its early stages produces no symptoms and thus the SF-36 when used to detect quality of life in early glaucoma diagnosis produced none to little evidence of an effect. The researches decided to revise a 15-item questionnaire derived from Mills and Drance's questionnaire and found that the four most important questions when assessing one's visual disturbances on their quality of life were: (1) "Do you have trouble following a line of print or finding the next line?" (2) "Do you bump into things?" (3) Have you had to give up any activities because of your vision?" (4) "Do you notice any variation in color richness from time to time?" The research showed that this questionnaire was much more successful in measuring the quality of life in glaucoma patients than the SF-36, because even patients with early glaucoma have emotional barriers that should be examined.

The conclusion of this study illustrated that the main challenge for primary care providers is to guide the patient's according to their therapeutic needs while at the same

time maintaining their confidence for acceptable levels of visual quality. Quality of life depends on the patient's current psychological level and the primary care provider's ability to instill confidence in the patient. The researchers believe that while treatment from primary care providers is vital for good control of glaucoma, it is more important for the patient to follow up and maintain therapy so that their quality of life is not impeded. Using this short four-point questionnaire as a tool may assist in identifying patients' number one concern. As primary care providers, we want to ensure that we maintain proper compliance with medications and intra-ocular pressures, but the patient just wants to know that you are aware of what is important to them because their number one concern is the prospect of losing their life to blindness (Lester & Zingirian, 2002).

In a similar study conducted by Dr. Wang, Dr. Tielsch, Dr. Ford, Dr. Quiqley, and Dr. Whelton in 1998, the researchers evaluated screening mechanisms for eye disease in the primary care setting. The researchers set out to prove that screening in primary care settings would be an effective method for detection of eye disease. Clients aged 40 years and older were interviewed and received a comprehensive eye examination including visual acuity testing, tonometry, slit-lamp examination, dilated fundus examination and photography sensitive and specific for glaucoma, cataracts, and diabetic retinopathy.

The study was conducted at the Johns Hopkins Internal Medicine Associates clinic, which provides adult primary care at the Johns Hopkins Hospital. Clients who were in poor health and could not tolerate an eye examination were excluded. A total of 405 participants were chosen and after giving written informed consent, were interviewed using a standard questionnaire. The data collected included medical history, personal and

family history of eye disease, self perceived vision, ocular symptoms, prior ophthalmic care, and major demographic characteristics.

The study concluded that diagnosis of suspected glaucoma could be based on the evaluation of visual fields tests, optic disk appearance, and IOP measurements. A probable diagnosis of cataracts could be based on the absence of the red reflex upon ophthalmoscopy and a best corrected visual acuity worse than 20/40 in one eye. Diabetic retinopathy was suspected if the patient had a diagnosis of diabetes and any evidence of microaneurysms, hemorrhages, hard exudates, or cotton wool spots. Furthermore, if diabetics had evidence of neovascularization, macular edema, or retinal fibrosis they were classified as severe cases. All clients were then referred to the Wilmer Eye Clinic for follow up by an ophthalmologist. Of the 205 referrals, there were 69 cases (17%) of definite glaucoma, 50 cases of cataracts (13%), and 48 cases (33.3%) of diabetic retinopathy. The remaining cases had evidence of eye disorders such as macular degeneration, retinal fibrosis, or ocular trauma. A weakness of this study highlighted that many primary care clinics were unable equip their offices with the equipment needed to carry out these screenings due to cost and inexperience. However, the study showed that while there may not be one single test that can be carried out presently by healthcare professionals in primary care to detect visual disorders, a promising approach is a thorough history. "The five item questionnaire developed in this study yielded a 98% estimated risk of ocular diseases when the answers were entered into a weighted equation based on a logistic model" (Wang, et al., pg. 79, 1998). The questionnaire focused on the following: age, previous diagnosis of diabetes, previous diagnosis of any eye disease including glaucoma, cataracts, diabetic retinopathy, eye trauma, personal rating of vision

based on good, fair, or poor, and any recent onsets of vision changes in the last six months.

In an article written by Susan Houde, PHD, RN, the importance of the role of nurse practitioner's in caring for the glaucoma patient was examined. The author noted that early detection and prevention of vision loss was both challenging and multifaceted. The research further showed that several risk factors have been associated with the development of glaucoma. These risk factors include: a positive family history of glaucoma in a first-degree relative, diabetes, chronic use of steroid therapy including eye, oral, and inhaled routes, increasing age, cigarette smoking, trauma to the eye, no previous comprehensive eye exam, and being of African-American race. Other risk factors noted in the research were myopia, migraines, Raynaud's disease and hypertension. Thus history taking especially related to the eye should be part of routine care by nurse practitioners in primary care. She stressed the importance of nurse practitioners being skilled in performing appropriate eye exams and ensuring that appropriate referrals were made with eye specialists regularly. The research showed that screening for glaucoma in primary care could be obtained through the Visual Function Questionnaire (VFQ-25). This tool was effective in screening older adults for vision loss and issues related to quality of life. The tool takes about 4 to 5 minutes to administer and is helpful to the primary care provider in assessing vision and the impact of vision loss (Houde, 2001).

According to Houde's research, glaucoma is difficult to diagnose based on symptoms because patients are mainly asymptomatic until the disease has severely progressed. Vision loss is irreversible, so early detection is vital. Nurse practitioners should be alert to

a history of falls or motor vehicle accidents and reports of dim vision or "tunnel vision". These reports can all be indicative of early glaucoma (Houde, 2001).

The nurse practitioner can have positive impacts on caring for patients at high risk for glaucoma by encouraging smoking cessation and properly managing hypertension thus possibly preventing glaucoma. Regular screening of high risk patients for glaucoma in patients with diabetes, African-Americans, and use of prolonged steroid use, should be conducted by the nurse practitioner in primary care. If the nurse practitioner does not have access to the resources needed to conduct a thorough glaucoma screen, then proper referral to an ophthalmologist should be made.

Clearly, the role of the nurse practitioner in regards to screening and caring for the patient with glaucoma is challenging but vital. It is important for the nurse practitioner to keep informed of the current scientific knowledge related to glaucoma so the patient can make appropriate decisions about their eye health. Patients who are well informed may be better able to cope with their diagnosis and take active steps that may help them to maintain their eye health or their quality of life if vision loss occurs (Houde, 2001).

Similarly in an article by Whitaker, 1998, the researchers noted that two million people in the United States had glaucoma, but only one-half of this population was aware of the diagnosis. The researchers stated that a diagnosis of glaucoma could only be made through a complete ocular examination. A thorough history and physical should be taken including a family history and psychosocial evaluation. Glaucoma medications can often aggravate depression. According to the article, the nurse practitioner should assess visual acuity, measure the IOP, and perform a thorough fundoscopic exam in those at high risk for glaucoma. Those at risk include African-American, history of hypertension, diabetes,

and chronic steroid use. Furthermore, the research showed that management of glaucoma depends on the type of glaucoma and is managed by an ophthalmologist. However, blindness can be prevented if early detection and treatment is initiated. The American Academy of Ophthalmology has sponsored a program called Glaucoma 2001 which aims to detect all cases of glaucoma by 2001. Patients who are at high risk and have not had a thorough eye examination are able to call a national number and a free evaluation will be scheduled (Whitaker, et al., 1998).

In conclusion, this article supports the importance of the role of the nurse practitioner in screening patients for glaucoma. While management is overseen by an ophthalmologist, the nurse practitioner act as the gatekeeper, ensuring patients at the highest risk for glaucoma are appropriately followed.

CHAPTER III

Design and Methodology

This chapter will present the specific parameters used for this research investigation. The approach that was used was that of an integrated literature review. The approach, literature selection procedure and literature analysis procedure are detailed in this chapter.

Approach

An integrated literature review, which is a review of research that amasses comprehensive information on a topic, weighs pieces of evidence, and integrates information to draw conclusions about the state of knowledge, will be used for this study. This investigation is an evidence-based practice systematic review. While an integrative literature review summarizes research on a topic of interest, by placing the research problem in context and identifying gaps and weaknesses in prior studies to justify the new investigation, evidence-based practice seeks to integrate best research evidence with clinical expertise and patient values (Straus, 2005). A summary of the current literature regarding glaucoma's relationship to quality of life and the role of primary care in screening and caring for glaucoma in the aging population is provided.

Literature Selection Procedure

A systematic search of CINAHL, MEDLINE, and The Cochrane Library was conducted for the relevant literature concerning glaucoma's relationship to quality of life in the aging population and the role of primary care in screening and caring for glaucoma. The reference list accompanying each article was then manually reviewed for further articles pertaining to the subject. Articles were selected based on inclusion of at least one

of the relevant concepts, whether as the focus of the article or as part of a broader topic. Other informative articles were also included to further explore the knowledgebase.

The systematic review of the literature began with CINAHL to find relevant nursing literature on glaucoma's relationship on the quality of life in the aging population and the role of primary care in screening and caring for glaucoma. Next, MEDLINE and then The Cochrane Library were evaluated for further relevant literature. Journal articles were obtained through Mississippi University for Women Library, via Internet databases and interlibrary loan, the review incorporated data beyond nursing literature to expand the knowledgebase for a thorough review, thus providing a multi-disciplinary approach.

References utilized were relevant and applicable to this investigation. The references were obtained from reputable and respected scholarly journals in the healthcare fields. The evidence-based practice procedure (Straus, et al., 2005) for the systematic review comprises the following steps:

1. Convert the need for information (about prevention, diagnosis, prognosis, therapy causation, etc.) into research questions
2. Track down the best evidence with which to answer the question using a variety of database strategies.
3. Critically appraise the evidence for its validity (closeness to the truth), impact (size of the effect), and applicability (usefulness in our clinical practice addressing both sensitivity and specificity
4. Integrate the critical appraisal with clinical expertise and the patient's unique Biology, values, and circumstances (p. 3-4).

Literature Analysis Procedure

For the purpose of this study, a knowledgebase of literature critiques will be used to critique the literature by source and date, variables of interest, literature type and research tools, research design and sample size, theoretical foundation, references, and key findings. Data (provided in Appendix A and B) is analyzed in terms of relevancy of finds and then summarized utilizing a chart format to assist in application of findings to the clinical problem. The findings document the current state of knowledge available that is discussed in Chapter Four according to the research questions regarding glaucoma's relationship to the quality of life in the aging population and the role of primary care in screening and caring for glaucoma.

Summary

This chapter detailed the parameters for this research investigation. This evidence-based practice systematic review of the literature will be conducted utilizing the literature selection procedure and literature analysis procedure highlighted above. Through this process, the research questions regarding the current level of healthcare knowledge of glaucoma's relationship to the quality of life in the aging population and the role of primary care in screening and caring for glaucoma will be answered.

CHAPTER IV

Knowledgebase Findings and Practice-Based Applications

The aim of this chapter is to present the findings of the knowledgebase that was formulated from this evidenced-based systematic literature review. Pertinent findings derived from this knowledgebase are provided in written and table form with practice-based applications from current clinical practice guidelines. The research questions are addressed and answered as they relate to the knowledgebase findings and practice-based applications.

Knowledgebase Findings

Two research questions were examined for this project. The findings reflect the current healthcare literature regarding glaucoma's relationship to quality of life in the aging population and the role of primary care in screening and caring for glaucoma. The literature was obtained through a computer search, utilizing CINAHL, MEDLINE, and The Cochrane Library. The literature reviewed regarding glaucoma's relationship to the quality of life in the aging population consisted of six data-based articles and which represented another 155 references. The literature reviewed regarding the role of primary care in screening and caring for glaucoma included eight data-based articles, which were representative of an additional 296 references. Pertinent findings of these reviews will be discussed.

Research Question One

Research Question One asks: What is glaucoma's relationship to the quality of life in the aging population? The literature available in the area of glaucoma is immense. However, the effect of glaucoma on one's quality of life in the primary care population

makes this a slightly more novel field for researchers. This being said, there have been many who have taken on the challenge of researching this problem in the primary care setting, as is noted in Table 2.

Table 2

Summary of Literature Search for RQ1

Search Terms	Number of Citations	Database
glaucoma and quality of life	90	CINAHL
	100	MEDLINE
	6	COCHRANE

Through the review of the literature, it was apparent that providers are aware of the problem of glaucoma in the primary care setting, and it most cases recognize the impact of the disease on one's quality of life. Most of the research acknowledges that many aspects of the client's life are affected such as independence in activities of daily living, functional loss such as driving, financial burden of the treatment, and the side effects of the treatment. However, what was also discovered in the literature, was that many factors such as education, socio-economic status, and gender also affected the client's perception on quality of life. According to Gupta (2005), the level of education made a difference in rating of quality of life. Seventy-eight percent of clients with no formal education were found to trade off expected years of living for perfect vision compared to only 15% of clients with postgraduate education. This was attributed to postgraduates possible understanding of the disease and the willingness to comply with therapy. Also females

were willing to trade off more years compared to males. This could be because of the percentage of women who rely on other family members for decision making.

Interestingly, another review by Adler (2005) noted that clients diagnosed with glaucoma were more willing to acknowledge their limitations as a result of decreased vision and were more apt to make plans for the future when independence may no longer be viable. While patients with and without glaucoma noted the importance of sight, glaucoma patients were much more cautious when performing activities of daily life despite their educational, socio-economic level or race.

The basic understanding that glaucoma affects the quality of life in the aging population is not in dispute. Neither is the fact that glaucoma impacts activities of daily living, functional ability, and financial responsibilities. However, the primary care provider's responsibility to the client must be addressed. Research needs to be conducted to determine ways to improve glaucoma client's quality of life.

Research Question Two

Research Question Two asks: What is the role of primary care in screening and caring for glaucoma in the aging population? With more than 692 million ambulatory care visits to clinics in the United States each year, primary care physicians and nurse practitioners conduct 41% of these visits (Wang, 2005). These visits provide an excellent opportunity for detection of prevalent eye diseases that may otherwise go undetected. The amount of literature researching the various ways primary care can screen for glaucoma has increased in recent years, as is noted in Table 3.

Table 3

Summary of Literature Search for RQ2

Search Terms	Number of Citations	Database
glaucoma and primary care	30	CINAHL
	70	MEDLINE
	6	COCHRANE

According to the literature, the role of primary care in screening and caring for glaucoma provides excellent opportunities for detection of eye diseases if accurate and efficient screening methods can be identified (Wang, 2005). According to Wang, (2005), their study indicated that there was room for improvement in screening eye diseases. Of 405 clients screened, 50% were found to have clinically important ocular pathology and one-third of those affected were unaware of their eye disease (17% of total).The research noted that previous studies have often concentrated on screening for single eye disease, but developing a program that would detect several eye diseases at one time would be much more efficient in primary care. On the down side, there is no research showing that one single test can effectively identify serious visual disorders in primary care. However, it is widely recognized that thoroughly evaluating the client's personal and family history is imperative when assessing for possible risks of eye disorders that would warrant an ophthalmologist referral (Wang, 2005).

Another study conducted by Fleming, Whitlock, et al. (2005) notes primary care providers should be aware of the following as risk factors for glaucoma: advanced age,

family history of glaucoma, and ethnic descent especially African Americans. Glaucoma is 4 times more likely to occur in African Americans than whites, and is the leading cause of blindness in African Americans. The study went on to say that while a dilated eye examination with direct ophthalmoscopy by an ophthalmologist has a reported sensitivity of 59% and a specificity of 73% for detecting and classifying optic disc changes associated with glaucoma, no data are available on the accuracy and reliability of direct ophthalmoscopy by primary care providers for detecting degenerative changes associated with glaucoma (Fleming, 2005).

While the research reviewed encourages thorough opthalmoscopy exams in primary care, there is no one tool used to detect glaucoma. The research does support that thorough client and family history, and proper referral to an ophthalmologist are vital in primary care so that proper treatment can be initiated. The study also addressed the harms of treating early asymptomatic POAG when determining the benefit of the treatment. Based on the Early Manifest Glaucoma Trial (EMGT), the study followed six years of client's treatment and found only 1 in 6 clients were expected to benefit from treatment. The chief harm to the clients were increased risk of cataract formation, decreased visual acuity, and ocular symptoms such as dryness, excessive tearing, or itching (Fleming, 2005).

Interestingly enough a study by Smeeth, (2005) showed that a delay in treatment did not influence vision-targeted health-related quality of life (HRQOL) in newly diagnosed glaucoma clients. However, visual function affected targeted quality of life up to 6 years after the Early Manifest Glaucoma Trial.

Practice-Based Application

Clinical practice guidelines for treatment of glaucoma have been published. However, there are no clinical practice guidelines or best practice recommendations for screening clients for glaucoma in primary care. A search on the World Wide Web, utilizing the American Academy of Ophthalmology, the United States Preventive Task Force, and the National Association of Social Worker's website provided access to all clinical guidelines regarding glaucoma and its relationship to the quality of life in the aging population and the role of primary care when treating clients with glaucoma. The research questions were examined with regards to these guidelines and action plans and pertinent findings will be discussed.

Research Question One

Again, Research Question One asks: What is the relationship between glaucoma and the quality of life in the aging population? Clinical practice guidelines concerning glaucoma and the quality of life in the aging populations have not been addressed by the American Academy of Ophthalmology or the United States Preventive Task Force. A further search on the World Wide Web found that the National Association of Social Worker's developed guidelines addressing issues affecting the aging population's quality of life in regards to visual disturbances. Within this realm, glaucoma, cataracts, diabetic retinopathy, and macular degeneration were all addressed as causes of visual disturbances in the aging population.

The guidelines set up by the National Association of Social Workers suggests that healthcare providers take into consideration the client's socio-economic status, living arrangements, and personal support system before initiating any treatment plan. For

example, they suggest not initiating a prescription regimen that is outside the client's financial means. According to Walgreens Pharmacy, the average cost of ophthalmic drops used to treat glaucoma such as Timoptic, are $85.00 per month. Also, they suggest securing public or private transportation for these individuals if needed. Many of the aging population can not see well enough to drive independently, nor do they have or want to burden family or friends. This point must be addressed before initiating appointments if compliance is to be met.

Research Question Two

Again, Research Question Two asks: What is the role of primary care in screening and caring for glaucoma in the aging population? The American Academy of Ophthalmology and United States Preventive Task Force have developed appropriate clinical guidelines for the role of primary care in relation to glaucoma screening. According to the American Academy of Ophthalmology's Policy Statement, primary care is responsible for the following: to discover and discern abnormal states from normal, relating general medical conditions and symptoms to possible eye diseases, to triage and manage effectively or refer for more specialized treatment, and to coordinate with other physicians and health care professionals for meeting general health care needs (Website of American Academy of Ophthalmology, 2005). The United States Preventive Services Task Force added that there is insufficient evidence to recommend for or against routine glaucoma screening in primary care practice (Website of USPSTF, 2005). However, Healthy People 2010 establishes objectives that ensure the aging population receive appropriate screenings in order to prevent disease.

Again, there is no single screening tool for glaucoma in primary care, but as the gatekeepers so to speak, primary care is responsible for conducting a thorough history and physical. Obtaining this information in a concise manner usually highlights any risk factors that would warrant an appropriate referral.

Summary

The main objective of this study was to investigate the two research questions pertaining to the healthcare knowledge of glaucoma and the relationship to quality of life in the aging population and the role of primary care in screening and caring for glaucoma in this population. This chapter attempted to appropriately answer these two questions using information from the systematic review of literature and practice-based guidelines obtained from multiple medical resources. According to the review of the literature, understanding the negative impact of glaucoma on the aging population's quality of life is recognized as a vital part of the holistic approach to caring for this population. The practice guidelines confirm that while ophthalmologists manage the glaucoma patient, the healthcare knowledge relating to the role of primary care in screening for glaucoma in this population is vital in order to assure proper follow up and treatment are delivered.

CHAPTER V

Evidence-Based Conclusions, Implications, and Recommendations

This chapter will address the findings of this study, interpret them, and formulate conclusions. The knowledgebase findings and the practice-based application findings from the research questions will also be compared and contrasted. Limitations encountered will then be discussed. This chapter will additionally speak to the implications and recommendation for further research and practice. Implications and recommendations will include those of research and practice specific to nursing theory, nursing research, advanced practice nursing, nurse practitioner education, and health policy. Lastly, a comprehensive summary of this investigation will be provided.

Summary of the Investigation

The systematic review of the literature demonstrated that there has been a significant interest in the examination of the effect of glaucoma on the quality of life in the aging population. Both provider and the client educational opportunities have been researched, as well as, many forms of educational media. Most importantly, the educational research has been applied to screening and caring for the aging population with glaucoma in primary care.

Interpretation of Findings with Conclusions

This section will review the findings of the research questions from the knowledgebase and practice-based application perspectives. Additional analysis of the findings will include the comparing and contrasting of these two perspectives as they relate to each question. The research questions will be answered and form the conclusions of this investigation.

Research Question One

Research Question one asks: What is glaucoma's relationship to the quality of life in the aging population? The level of healthcare knowledge demonstrated by the research reveals that there is a relatively high level of basic knowledge by providers regarding the problem of glaucoma and the impact on the quality of life in the aging population. As expected, very detailed information about the results of specific limitations regarding functional loss, for instance, is not widely known. However, while the level of basic knowledge is apparent, the research also noted that basic knowledge does not translate into correct practice, as other forces often prevent the provider from using correct judgment with regards to interventions as a result of the impact on one's quality of life.

The clinical practice guidelines are very general, and easily followed in any primary care setting. Establishing appropriate referrals such as resources that provide transportation or reduced costs of medications allow for variation in primary care practice based on their geographical area.

The integration of the knowledgebase findings and practice-based applications reveal an adequate amount of basic healthcare knowledge on glaucoma and its relationship to the quality of life in the aging population but do not reveal an understanding of the long term effects on the future of this population. Consequently, the answer to Research Question One is that the relationship between glaucoma and the quality of life in the aging population coincides, illustrating a negative impact on their physical and psychological being. However, according to the literature, there is a poor understanding of, or lack of interest in, the long-term consequences of this negative impact.

Research Question Two

Research Question Two asks: What is the role of primary care in screening and caring for glaucoma in the aging population? The literature reviewed does not support one single tool used in primary care to screen the aging population for glaucoma. The literature suggests examples of questionnaires and screening tools such as the visual field questionnaire, tonometry, visual acuity tests, and dilated fundus examines as ways to suspect a diagnosis of glaucoma. Again, there is no one single tool designed to diagnose glaucoma in primary care nor are there documented research indicating early treatment prevents progression of the disease. However, for the provider, a thorough personal and familial history often signals the need for a thorough ophthalmic exam and necessary referral to an ophthalmologist.

Practice-based applications provide providers and patients with material that support early detection of glaucoma.

The integration of the knowledgebase findings and practice-based applications reflect agreement on the importance of routine health exams and a thorough personal and family history to detect the risks of glaucoma. Once again, there is disagreement on the ways to actually screen clients for glaucoma since there is not one specific tool used to diagnose glaucoma in primary care. The practice-based applications address this issue as well. As a result, the answer to Research Question Two is that while primary care does not diagnose or manage glaucoma they can play a role in screening the aging population for glaucoma. While there is not one specific tool used to diagnose glaucoma in primary care, thorough personal and familial history as well as an ophthalmoscopic exam will greatly highlight the probability of that further evaluation by an ophthalmologist is warranted.

Limitations

There were a few limitations encountered within the course of this study. The literature obtained consisted of many research articles that did not provide adequate sample sizes or methodology to establish verifiable results. An additional limitation to this study was the inability to access some of the literature available, due to failure to receive through interlibrary loan. This might have meant important articles were inadvertently left out of the study.

Implications and Recommendations

The literature investigated within this study revealed some deficiencies that need to be addressed. The lack of information obtained in the areas of nursing theory, nursing research, advanced practice nursing, nurse practitioner education, will now be discussed.

Nursing Theory

The theoretical foundation utilized in this study was Nola Pender's Health Promotion Model. Unfortunately, no information existed regarding this theory as it related to glaucoma, even though it was an appropriate theory for this project. Additionally, theory-based research was not available related to glaucoma. Many of the studies used in this project were written by ophthalmologists and did not provide the use of nursing theory in their research.

Nursing Research

The amount and quality of the research pertaining to glaucoma by nurse practitioners was below expectation. Additionally, there was no inclusion of nurse practitioners in population samples from other studies when examining glaucoma screening in primary care. As a result, this study highlights the importance of nurse practitioners to avail

themselves to other researchers as subjects and ensure their role in providing screening for glaucoma clients in primary care.

Advanced Nursing Practice

Advanced nursing practice need to make other disciplines, especially ophthalmologists aware of its importance in the primary care setting. While advanced nursing practice requires guidelines and proven strategies for direction in the management of patients, it will never obtain these if the practitioner is never included in the research. Additionally, advanced practice nurses are obviously knowledgeable in the importance of a thorough history and physical but they need to be more experienced in the findings and implications of an ophthalmoscopic exam that can extend that knowledge into creating guidelines for practice. Advanced practice nurses need to voice this necessity regarding research and clinical guidelines.

Nurse Practitioner Education

Nurse practitioners have a responsibility to educate themselves regarding current topics important to their practice. If they are practicing in primary care, screening for eye disorders especially glaucoma should be included in these topics. However, nurse practitioners must also understand the importance of evidence-based practice and the importance of clinical guidelines. Without these, the nurse practitioner is functioning alone, without the necessary knowledge and research behind them. Evidence-based practice cannot be underestimated in the education of the nurse practitioner.

Health Policy

When one thinks of health policy, they often think only on a large scale. However, in the case of glaucoma in primary care, the nurse practitioner's responsibility with regards

to health policy will most likely be reflected on a much smaller scale. Encouraging local and state governments for funding public transportation and assistance for the aging population in regards to their prescriptions in not only urban but rural areas would be an important way that the nurse practitioner could be involved in health policy related to glaucoma.

Summary

This study investigated the relationship of glaucoma and the quality of life in the aging population and the role of primary care in screening the aging population for glaucoma. Research has shown that a diagnosis of glaucoma clearly affects the quality of life in the aging population based on physical, psychological and financial freedoms. A diagnosis of glaucoma can affect a patient's quality of life by limiting their physical abilities such as walking, climbing stairs, and driving. Psychologically, glaucoma may hinder a person's self confidence. Similarly, physical limitations may lead to depression. Financially, the cost of treatment alone may impact a person's quality of life. The research has identified the aging population as a population targeted by glaucoma. Many of the people in this population are on fixed incomes which do not allow for compliance in such costly treatments. Clearly, Nurse Practitioners possess the ability to establish evidence based practice behaviors in order to address concerns and needs of patients. Congruently, Nurse Practitioners are educated and equipped to effectively treat glaucoma in the aging population.

Glaucoma in the aging population may be early and asymptomatic, or advanced with significant clinical symptoms. Regardless of the stage, as Nurse Practitioners we must identify the holistic patient so that high quality, cost effective care can be provided.

While a diagnosis of glaucoma is going to be made by the ophthalmologist, a Nurse Practitioner's job is to astutely pick up on key findings of the ophthalmic exam that would warrant a referral. Also, when assessing the risk factors of a patient, Nurse Practitioners must do a thorough health history, noting any family history of glaucoma. These behaviors support a need for an ophthalmic evaluation which may have otherwise gone undetected. Finally, the Nurse Practitioner's responsibility as a primary care provider is to ensure that preventative measures and screenings are being completed. Individuals diagnosed with glaucoma certainly may face a life changing experience, but the Nurse Practitioner may impact quality of life through effective enhancement of early detection of signs and symptoms which warrant referral.

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